

U.S. National Phase of PCT/GB03/01649
Preliminary Amendment dated: October 15, 2004

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1(original). An induction furnace wherein a susceptor made from an alloy comprising niobium, hafnium and titanium is positioned within the induction coil of the furnace.

2(original). An induction furnace as claimed in claim 1 wherein the alloy susceptor is cylindrical in shape, the interior surface of the cylinder forming the lining of the furnace chamber.

3(original). An induction furnace as claimed in claim 1 wherein the alloy susceptor is cylindrical in shape and is embedded within a cylinder of a refractory material, which forms the lining of the furnace chamber.

4(original). An induction furnace as claimed in claim 3, wherein the refractory material is a high purity alumina.

5(currently amended). An induction furnace as claimed in ~~claims 3 or 4~~ claim 3 wherein the inner surface of the cylinder of refractory material is formed with one or more protrusions to assist progress through the furnace of the material which is being heated by the furnace.

6(original). An induction furnace as claimed in claim 5 wherein the protrusion or protrusions are in the form of one or more helical flanges.

7(currently amended). An induction furnace as claimed in claim 5 ~~[[or 6]]~~ wherein the cylinder is provided at each end with a rolling seal.

8(currently amended). An induction furnace as claimed in ~~any one of claims 2 to 7~~ claim 2 wherein means are provided to rotate the cylinder about its major axis.

9(currently amended). An induction furnace as claimed in ~~any one of the preceding claims~~ claim 1 wherein the induction coil is contained within a gas-tight chamber surrounding the cylindrical wall of the furnace.

10(original). An induction furnace as claimed in claim 9 wherein means are provided to fill the gas-tight chamber with nitrogen or inert gas.

11(currently amended). An induction furnace as claimed in ~~any one of the preceding claims~~ claim 1 which is provided at each end with an air lock.

12(currently amended). An induction furnace as claimed in ~~any one of the preceding claims~~ claim 1 which also comprises means for precision injection of air, oxygen, water, steam or any other oxidizer or reducing agents such as hydrogen, hydrogen peroxide and hydrochloric acid into the furnace chamber.

13(currently amended). An induction furnace as claimed in ~~any one of the preceding claims~~ claim 1 comprising means for temperature measurement at a plurality of locations within the furnace chamber by detection and measurement of heat radiation from said locations, for the purpose of furnace control.

14(currently amended). An induction furnace as claimed in ~~any one of the preceding claims~~ claim 1 wherein the alloy susceptor further comprises zirconium.

15(original). An induction furnace as claimed in claim 14, wherein the alloy susceptor consists of 88% niobium, 10% hafnium, 1% titanium and 1% zirconium.

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16(original). An induction furnace as claimed in claim 1 substantially as herein before described with reference to and as illustrated in the accompanying drawing.

17(currently amended). Use of a furnace as claimed in ~~any one of the preceding claims~~ claim 1 in the disposal of waste materials, or roasting of ores or minerals.